

-

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

CTC	GAG	CCC	TAT	GCT	TGC	CCT	GTC	GAG	TCC	TGC	GAT	CGC	CGC	TTT	TCT	48
Leu	Glu	Pro	Tyr	Ala	Cys	Pro	Val	Glu	Ser	Cys	Asp	Arg	Arg	Phe	Ser	
1				5				10						15		
CGC	TCG	GAT	GAG	CTT	ACC	CGC	CAT	ATC	CGC	ATC	CAC	ACA	GGC	CAG	AAG	96
Arg	Ser	Asp	Glu	Leu	Thr	Arg	His	Ile	Arg	Ile	His	Thr	Gly	Gln	Lys	
			20					25					30			
CCC	TTC	CAG	TGT	CGA	ATA	TGC	ATG	CGT	AAC	TTC	AGT	CGT	AGT	GAC	CAC	144
Pro	Phe	Gln	Cys	Arg	Ile	Cys	Met	Arg	Asn	Phe	Ser	Arg	Ser	Asp	His	
		35					40					45				
CTT	ACC	ACC	CAC	ATC	CGC	ACC	CAC	ACA	GGC	GAG	AAG	CCT	TTT	GCC	TGT	192
Leu	Thr	Thr	His	Ile	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Phe	Ala	Cys	
	50					55					60					
GAC	ATT	TGT	GGG	AGG	AAG	TTT	GCC	AGG	AGT	GAT	GAA	CGC	AAG	AGG	CAT	240
Asp	Ile	Cys	Gly	Arg	Lys	Phe	Ala	Arg	Ser	Asp	Glu	Arg	Lys	Arg	His	
65					70					75					80	
ACC	AAA	ATC	CAT	TTA	AGA	CAG	AAG	GAC	ACT	AGT						273
Thr	Lys	Ile	His	Leu	Arg	Gln	Lys	Asp	Thr	Ser						
				85					90							

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 91 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Leu	Glu	Pro	Tyr	Ala	Cys	Pro	Val	Glu	Ser	Cys	Asp	Arg	Arg	Phe	Ser	
1				5				10						15		
Arg	Ser	Asp	Glu	Leu	Thr	Arg	His	Ile	Arg	Ile	His	Thr	Gly	Gln	Lys	
			20					25					30			
Pro	Phe	Gln	Cys	Arg	Ile	Cys	Met	Arg	Asn	Phe	Ser	Arg	Ser	Asp	His	
		35					40					45				
Leu	Thr	Thr	His	Ile	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Phe	Ala	Cys	
	50					55					60					
Asp	Ile	Cys	Gly	Arg	Lys	Phe	Ala	Arg	Ser	Asp	Glu	Arg	Lys	Arg	His	
65					70					75					80	
Thr	Lys	Ile	His	Leu	Arg	Gln	Lys	Asp	Thr	Ser						
				85					90							

(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 22 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(vii) IMMEDIATE SOURCE:

- (B) CLONE: FTX3

[illegible]

22

(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(B) CLONE: BZF3

21

(A) LENGTH: 60 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(B) CLONE: ZF36K

60

(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(B) CLONE: R3B

21

(A) LENGTH: 21 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(vii) IMMEDIATE SOURCE:

(B) CLONE: ZFNsi-B

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

CATGCATATT CGACACTGGA A

21

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 66 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(vii) IMMEDIATE SOURCE:

(B) CLONE: ZF2r6F

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

CAGTGTGCGAA TATGCATGCG TAACTTCNNK NNNNNNNNNK NKNNKACCAC CCACATCCGC
ACCCAC

60

66

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 66 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(vii) IMMEDIATE SOURCE:

(B) CLONE: AFI6rb

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

CTGGCCTGTG TGGATGCGGA TATGMNNMNN MNNMNNMNNC GAMNNAGAAA AGCGGCGATC
GCAGGA

60

66

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 24 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(vii) IMMEDIATE SOURCE:

(B) CLONE: ZFIF

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

CATATCCGCA TCCACACAGG CCAG

24

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

006030-00200560

(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Arg Ser Asp Glu Leu Thr Arg His
1 5

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 6 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Ser Arg Ser Asp His Leu
1 5

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 34 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

CGTAAATGGG CGCCCTTTTG GCGCCCCATT TACG

34

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Arg Ser Asp Glu Arg Lys Arg His
1 5

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

[illegible]

Trp Ser Ile Pro Val Leu Leu His
1 . 5

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Trp Ser Leu Leu Pro Val Leu His
1 5

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

Phe Ser Phe Leu Leu Pro Leu His
1 5

(2) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Leu Ser Thr Trp Arg Gly Trp His
1 5

(2) INFORMATION FOR SEQ ID NO:22:

(1) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
(B) TYPE: amino acid
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Thr Ser Ile Gln Leu Pro Tyr His
1 5

(2) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 61 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

TGATCTCAGA AGCCAAGCAG GGTCGGGCCT GGTTAGTACT TGGATGGGAG ACCGCCTGGG
A

60
61

(2) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Tyr Ile Cys Ser Phe Ala Asp Cys Gly Ala Ala Tyr Asn Lys Asn Trp
1 5 10 15
Lys Leu Gln Ala His Leu Cys Lys His Thr
20 25

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Phe Pro Cys Lys Glu Glu Gly Cys Glu Lys Gly Phe Thr Ser Leu His
1 5 10 15
His Leu Thr Arg His Ser Leu Thr His Thr
20 25

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 26 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Phe Thr Cys Asp Ser Asp Gly Cys Asp Leu Arg Phe Thr Thr Lys Ala
1 5 10 15
Asn Met Lys Lys His Phe Asn Arg Phe His
20 25

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 13 bas pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

TGGATGGGAG ACC

13

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Arg Ser Asp Glu Arg Lys Arg His
1 5

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

GTCCATAAGA TTAGCGGATC C

21

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

GTGAGCGAGG AAGCGGAAGA G

21

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 34 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

CCTGCGTGGG CGCCCTTTTG GCGCCCCACG CAGG

34

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 4 amino acids

(B) TYPE: amino acid

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(B) LOCATION: 4...4

(D) OTHER INFORMATION: where Xaa at position 4 is Lys or Pro

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Thr Gly Glu Xaa

1

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 462 base pairs

(B) TYPE: nucleic acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(ix) FEATURE:

(A) NAME/KEY: Coding Sequence

(B) LOCATION: 1...459

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

ATG CTC GAG CTC CCC TAT GCT TGC CCT GTC GAG TCC TGC GAT CGC CGC	48
Met Leu Glu Leu Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg	
1 5 10 15	
TTT TCT CGC TCG GAT GAG CTT ACC CGC CAT ATC CGC ATC CAC ACA GGC	96
Phe Ser Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly	
20 25 30	
CAG AAG CCC TTC CAG TGT CGA ATA TGC ATG CGT AAC TTC AGT CGT AGT	144
Gln Lys Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser	
35 40 45	
GAC CAC CTT ACC ACC CAC ATC CGC ACC CAC ACA GGC GAG AAG CCT TTT	192
Asp His Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe	
50 55 60	
GCC TGT GAC ATT TGT GGG AGG AAG TTT GCC AGG AGT GAT GAA CGC AAG	240
Ala Cys Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys	
65 70 75 80	
AGG CAT ACC AAA ATC CAT ACC GGR CAG AAG CCC ACT AGT GGC GGT GGT	288
Arg His Thr Lys Ile His Thr Xaa Gln Lys Pro Thr Ser Gly Gly Gly	
85 90 95	

[illegible]

(2) INFORMATION FOR SEQ ID NO:34:

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

ATG CTC GAG CTC CCC TAT GCT TGC CCT GTC GAG TCC TGC GAT CGC CGC	48
Met Leu Glu Leu Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg	
1 5 10 15	
TTT TCT CGC TCG GAT GAG CTT ACC CGC CAT ATC CGC ATC CAC ACA GGC	96
Phe Ser Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly	
20 25 30	
CAG AAG CCC TTC CAG TGT CGA ATA TGC ATG CGT AAC TTC AGT CGT AGT	144
Gln Lys Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser	
35 40 45	
GAC CAC CTT ACC ACC CAC ATC CGC ACC CAC ACA GGC GAG AAG CCT TTT	192
Asp His Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe	
50 55 60	
GCC TGT GAC ATT TGT GGG AGG AAG TTT GCC AGG AGT GAT GAA CGC AAG	240
Ala Cys Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys	
65 70 75 80	
AGG CAT ACC AAA ATC CAT ACC GGT CAG AAG CCC ACT AGT GGC GGT GGT	288
Arg His Thr Lys Ile His Thr Gly Gln Lys Pro Thr Ser Gly Gly Gly	
85 90 95	
CTG ACC GAC ACC CTG CAG GCG GAA ACC GAC CAG CTG GAA GAC GAA AAA	336
Leu Thr Asp Thr Leu Gln Ala Glu Thr Asp Gln Leu Glu Asp Glu Lys	
100 105 110	
TCC GCG CTG CAA ACC GAA ATC GCG AAC CTG CTG AAA GAA AAA GAA AAG	384
Ser Ala Leu Gln Thr Glu Ile Ala Asn Leu Leu Lys Glu Lys Glu Lys	
115 120 125	
CTG GAG TTC ATC CTG GCG GCA CAC GCT AGC GGC CAG GCC GGC CAG TAC	432
Leu Glu Phe Ile Leu Ala Ala His Ala Ser Gly Gln Ala Gly Gln Tyr	
130 135 140	
CCG TAC GAC GTT CCG GAC TAC GCT TCT TAA	462
Pro Tyr Asp Val Pro Asp Tyr Ala Ser	
145 150	

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 153 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

Met Leu Glu Leu Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg	
1 5 10 15	
Phe Ser Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly	
20 25 30	
Gln Lys Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser	
35 40 45	
Asp His Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe	
50 55 60	

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 98 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Met Lys Leu Leu Glu Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg
1 5 10 15
Arg Phe Ser Lys Ser Ala Asp Leu Lys Arg His Ile Arg Ile His Thr
20 25 30
Gly Glu Lys Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe
35 40 45
Ser Lys Ser Ala Asp Leu Lys Arg His Ile Arg Ile His Thr Gly Glu
50 55 60
Lys Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe Ser Lys
65 70 75 80
Ser Ala Asp Leu Lys Arg His Ile Arg Ile His Thr Gly Gln Lys Pro
85 90 95
Thr Thr

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 543 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(ix) FEATURE:

- (A) NAME/KEY: Coding Sequence
- (B) LOCATION: 1...543

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

ATG CTC GAG CTC CCC TAT GCT TGC CCT GTC GAG TCC TGC GAT CGC CGC 48
Met Leu Glu Leu Pro Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg
1 5 10 15
TTT TCT CGC TCG GAT GAG CTT ACC CGC CAT ATC CGC ATC CAC ACA GGC 96
Phe Ser Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly
20 25 30
CAG AAG CCC TTC CAG TGT CGA ATA TGC ATG CGT AAC TTC AGT CGT AGT 144
Gln Lys Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser
35 40 45
GAC CAC CTT ACC ACC CAC ATC CGC ACC CAC ACA GGC GAG AAG CCT TTT 192
Asp His Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe
50 55 60
GCC TGT GAC ATT TGT GGG AGG AAG TTT GCC AGG AGT GAT GAA CGC AAG 240
Ala Cys Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys
65 70 75 80

AGG CAT ACC AAA ATC CAT ACC GGG GAG AAG CCC TAT GCT TGC CCT GTC	288
Arg His Thr Lys Ile His Thr Gly Glu Lys Pro Tyr Ala Cys Pro Val	
85 90 95	
GAG TCC TGC GAT CGC CGC TTT TCT CGC TCG GAT GAG CTT ACC CGC CAT	336
Glu Ser Cys Asp Arg Arg Phe Ser Arg Ser Asp Glu Leu Thr Arg His	
100 105 110	
ATC CGC ATC CAC ACA GGC CAG AAG CCC TTC CAG TGT CGA ATA TCC ATG	384
Ile Arg Ile His Thr Gly Gln Lys Pro Phe Gln Cys Arg Ile Ser Met	
115 120 125	
CGT AAC TTC AGT CGT AGT GAC CAC CTT ACC ACC CAC ATC CGC ACC CAC	432
Arg Asn Phe Ser Arg Ser Asp His Leu Thr Thr His Ile Arg Thr His	
130 135 140	
ACA GGC GAG AAG CCT TTT GCC TGT GAC ATT TGT GGG AGG AAG TTT GCC	480
Thr Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys Gly Arg Lys Phe Ala	
145 150 155 160	
AGG AGT GAT GAA CGC AAG AGG CAT ACC AAA ATC CAT TTA AGA CAG AAG	528
Arg Ser Asp Glu Arg Lys Arg His Thr Lys Ile His Leu Arg Gln Lys	
165 170 175	
GAC TCT AGA ACT AGT	543
Asp Ser Arg Thr Ser	
180	

(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 181 amino acids
- (B) TYPE: amino acid
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: protein

(v) FRAGMENT TYPE: internal

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Met	Leu	Glu	Leu	Pro	Tyr	Ala	Cys	Pro	Val	Glu	Ser	Cys	Asp	Arg	Arg
1				5					10					15	
Phe	Ser	Arg	Ser	Asp	Glu	Leu	Thr	Arg	His	Ile	Arg	Ile	His	Thr	Gly
			20					25					30		
Gln	Lys	Pro	Phe	Gln	Cys	Arg	Ile	Cys	Met	Arg	Asn	Phe	Ser	Arg	Ser
		35					40					45			
Asp	His	Leu	Thr	Thr	His	Ile	Arg	Thr	His	Thr	Gly	Glu	Lys	Pro	Phe
	50					55					60				
Ala	Cys	Asp	Ile	Cys	Gly	Arg	Lys	Phe	Ala	Arg	Ser	Asp	Glu	Arg	Lys
	65				70					75				80	
Arg	His	Thr	Lys	Ile	His	Thr	Gly	Glu	Lys	Pro	Tyr	Ala	Cys	Pro	Val
			85						90					95	
Glu	Ser	Cys	Asp	Arg	Arg	Phe	Ser	Arg	Ser	Asp	Glu	Leu	Thr	Arg	His
		100						105					110		
Ile	Arg	Ile	His	Thr	Gly	Gln	Lys	Pro	Phe	Gln	Cys	Arg	Ile	Ser	Met
	115					120					125				
Arg	Asn	Phe	Ser	Arg	Ser	Asp	His	Leu	Thr	Thr	His	Ile	Arg	Thr	His
	130				135						140				
Thr	Gly	Glu	Lys	Pro	Phe	Ala	Cys	Asp	Ile	Cys	Gly	Arg	Lys	Phe	Ala
	145				150					155				160	
Arg	Ser	Asp	Glu	Arg	Lys	Arg	His	Thr	Lys	Ile	His	Leu	Arg	Gln	Lys
				165					170					175	

[illegible]

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 46 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:45:

46

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 39 base pairs
(B) TYPE: nucleic acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

39:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 57 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

57

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 32 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

32

(1) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 38 base pairs
(B) TYPE: nucleic acid

- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

GATGTATGTA GCGTGGGCGG CGTGGGCGTA AGTAATGC

38

(2) INFORMATION FOR SEQ ID NO:50:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 38 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

GATGTATGTA GCGTGGGCGG GGGCGGGGTA AGTAATGC

38

(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 38 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

GATGTATGTA GCGGCGGCGG CGGCGGCGTA AGTAATGC

38

(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

GATGTATGTA GCGTGGGCGT AAGTAATGC

29

(2) INFORMATION FOR SEQ ID NO:53:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

GATGTATGTA GGGCGGGGT AAGTAATGC

29

006020-0000500

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 29 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

GATGTATGTA GCGTGGGCGT AAGTAATGC

29

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 41 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

GAGGAGGAGG AATTCCGACA TTTATAATGA ACGTGAATTG C

41

(2) INFORMATION FOR SEQ ID NO:56:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 45 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

TGCGCCCACG CCGCCCACGC GATGATTGGG AGCTTTTTTT GCACG

45

(2) INFORMATION FOR SEQ ID NO:57:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 51 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

TCGCGTGGGC GCGTGGGCG CAAAAATTA TTATCATGGA TTCTAAAACG G

51

(2) INFORMATION FOR SEQ ID NO:58:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 42 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

GAGGAGGAGG CGGCCGCAGG TAGATGAGAT GTGACGAACG TG

42

(2) INFORMATION FOR SEQ ID NO:59:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 45 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:59:

TGCCCCGCCC CCGCCCACGC GATGATTGGG AGCTTTTTTT GCACG

45

(2) INFORMATION FOR SEQ ID NO:60:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 51 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:60:

TCGCGTGGGC GGGGGCGGG CAAAAATTA TTATCATGGA TTCTAAAACG G

51

(2) INFORMATION FOR SEQ ID NO:61:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:61:

GCGTGGGCGG CGTGGGCG

18

(2) INFORMATION FOR SEQ ID NO:62:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 18 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Genomic DNA

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

GCGTGGGCGG GGGCGGGG

18

006020:0020500